

DQA:

Sub

Date:

15/07/02

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

Date:

Work Order update only ☐

Work Order: <u>133952</u> Part No. <u>D2523</u> NCR No. <u>15-5287</u>	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☒</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☒</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>			Skid-tube ☒	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																															
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^{0.110} 0.125 Thickness is at 0.102 which is not conform to the tolerance of drawing Re → operator error		→ $\left[\begin{matrix} 0.102 \\ 0.125 \end{matrix} \right]$ DAMAGE LOCATED IN SHEAR WEB (LOW STRESS AREA) SEE ATTACHED STRESS ANALYSIS, LOSS LOSS OF BENDING STRENGTH IS NEGLIGIBLE. LOSS OF STRENGTH IS EQUIVALENT TO CAPS BEING MACHINED AT MIN TOLERANCE.		Lead hand / Supervisor Approval Verification <u>B.A 15/07/30</u> DAS 08 9-09																																																																														
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">Root Cause</th> <th colspan="4" style="text-align: left;">FAULT CATEGORY</th> </tr> </thead> <tbody> <tr> <td style="width:10%;">Environment ☐</td> <td style="width:10%;">No Re-verification ☐</td> <td style="width:10%;">Pressure/Forced ☐</td> <td style="width:10%;">Temperature/Cure ☐</td> <td style="width:10%;">Power Loss/Surge ☐</td> <td style="width:10%;">Positioned Wrong ☐</td> </tr> <tr> <td>Design ☐</td> <td>Operator ☒</td> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>Offset/Setup ☒</td> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>Supplier ☐</td> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>Training ☐</td> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Material ☐</td> <td>Use for Testing ☐</td> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>Poor Information ☐</td> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>☒ Off-set</td> <td>Drawing ☐</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>Rushing ☐</td> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>LOA ☐</td> <td>Product Improvement ☐</td> <td>Wave/Twist in Tube ☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Substation ☐</td> <td>Process Improvement ☐</td> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>Manufacturing Process ☐</td> <td colspan="4"></td> </tr> <tr> <td>Misidentified ☐</td> <td>Past Due ☐</td> <td colspan="4">OTHER: ☐</td> </tr> </tbody> </table>					Root Cause		FAULT CATEGORY				Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☒	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☒	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	☒ Off-set	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐					Misidentified ☐	Past Due ☐	OTHER: ☐			
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Work Order ID 133952

Tuesday, June 23, 2015 3:25:22 PM

133952

Page 3

Item ID: D2523 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Mounting Bracket
 Start Date: 7/17/15 Start Qty: 10.00 ***10*** Cust Item ID:
 Required Date: 7/17/15 Req'd Qty: 10.00 ***10*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Chemical Conversion Coat per QSI005 4.1	0.00							
160									
HandFinish	Memo	0.00							
Hand Finishing									
170	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
170									
Powdercoat	Memo	0.00							
Powder Coating	START TIME: <u>1:40</u> OVEN TEMPERATURE: <u>210</u> FINISH TIME: <u>3:00</u>								
180	QC3- Inspect Part Finish	0.00							
180									
QC	Memo	0.00							
Quality Control									

10 0 15-8-26

10 0 15-8-27

(10) 38 9-80
AUG 28 2015

DQA: _____ Date: _____



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Work Order ID 133952

Tuesday, June 23, 2015 3:25:22 PM

133952

Page 4

Item ID: D2523 Accept *N900040100* Setup Start *NS1*

Revision ID: Stop *NS2*

Item Name: Mounting Bracket

Start Date: 7/17/15 Start Qty: 10.00 *10* Cust Item ID:

Required Date: 7/17/15 Req'd Qty: 10.00 *10* Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	Identify as per dwg & Stock Location: <u>S1445</u>	0.00							
190									
Packaging	Memo	0.00							
Packaging									
200	QC21- Final Inspection - Work Order Release	0.00							
200									
QC	Memo	0.00							
Quality Control									

AUG 31 2015

15/8/31

20150831

DQA: _____ Date: _____



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Picklist Print

Tuesday, June 23, 2015 3:25:21 PM

Page 1

Work Order ID: 133952

133952

Parent Item: D2523

D2523

Parent Item Name: Mounting Bracket

Start Date: 7/17/15

Required Date: 7/17/15

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP C01.04.16Re format, added DT8560EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

M6061T6B1.000X12.00		Purchased	No			100	f	27.8000	1.8125	19.07895			
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M6061T6B1 000X12 000

6061-T6 Bar 1.00 x 12.00

**

10.750'

DAS

20

9-89

1507-23

Location

Loc Qty

Loc Code

MAT007

27.8

{ 123649 }

0.8

{ m115844 }

5

M126351

1.5

{ m130013 }

3.5

{ m130527 }

17

800'

1.533

2.500

5.917'

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								QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

DART AEROSPACE LTD		Work Order: 133952
Description: Mounting Bracket		Part Number: D2523
Inspection Dwg: D2523	Rev: A2	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

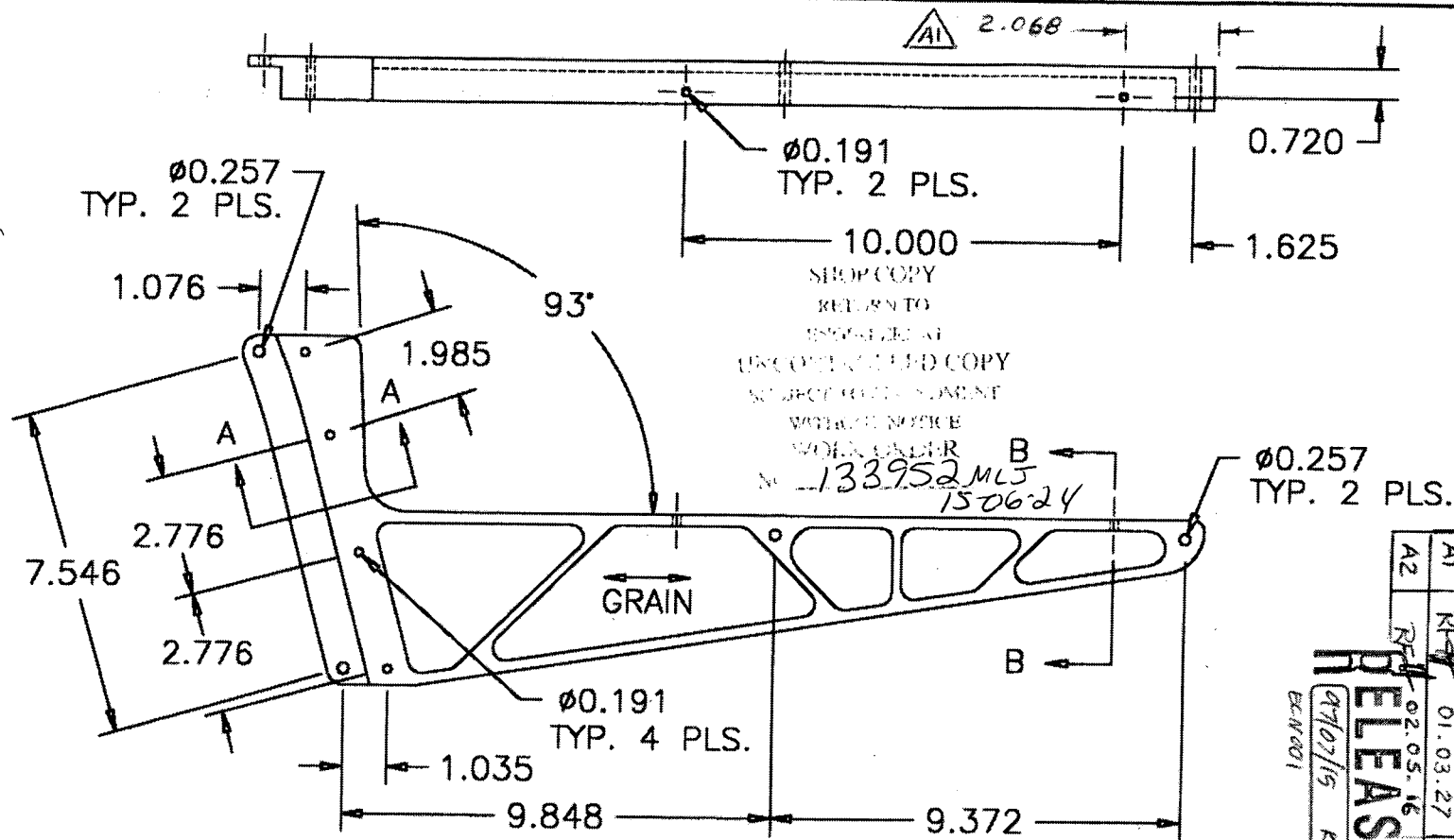
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.257	+0.005/-0.000	0,259	✓		MIP-04	vern
1.076	+/-0.010	1,076	✓			
1.985	+/-0.010	1,985	✓			
Ø0.257	+0.005/-0.001	0,259	✓			
9.372	+/-0.010	9,372	✓			
1.035	+/-0.010	1,035	✓			
Ø0.191	+0.005/-0.000	0,191	✓			
7.546	+/-0.010	7,546	✓			
2.776	+/-0.010	2,776	✓			
2.776	+/-0.010	2,776	✓			
0.875	+/-0.010	0,876	✓			
R0.125	+/-0.010	0,125	✓			Radius gauge
1.00	+/-0.030	0,985	✓		MIP-04	vern
R0.125	+/-0.010	0,125	✓			Radius gauge
0.750	+/-0.010	0,747	✓		MIP-08	Dial depth mic
0.250	+/-0.010	0,246	✓		MIP-09	vern
R0.250	+/-0.010	0,250	✓			Radius gauge
0.125	+/-0.010	0,115	✓		118-120	Dep tooth mic
R0.125	+/-0.010	0,125	✓			Radius gauge
R0.063	+/-0.010	0,063	✓			

Measured by: <i>[Signature]</i>
Date: 15/07/30

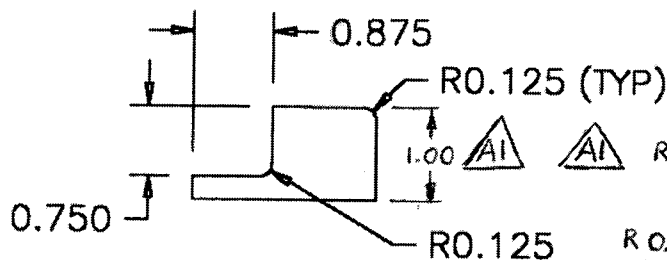
Audited by: JFL
Date: 2015-08-04

Prototype Approval:	N/A
Date:	N/A

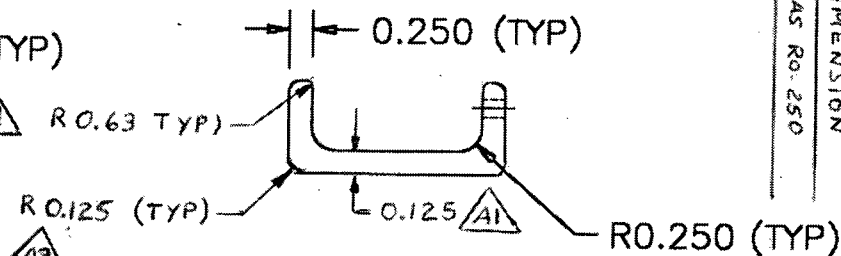
Rev	Date	Change	Revised by	Approved
A	05.02.17	New Issue	KJ/JLM	<i>[Signature]</i>



SECTION A-A
SCALE 1:2



SECTION B-B
SCALE 1:2

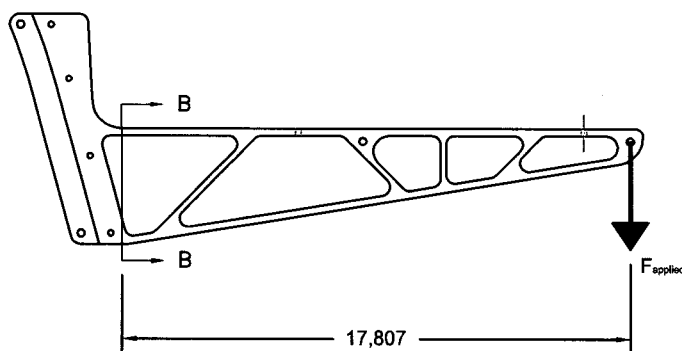


MATERIAL: 6061-T6 QQ-A-200/8 1.00 THICK
FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE PER DART QSI 005 4.3



RELEASED
01/07/15 KE
BCN001

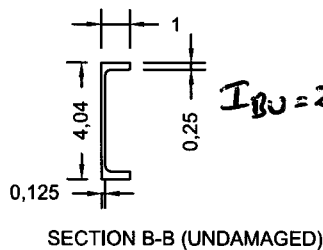
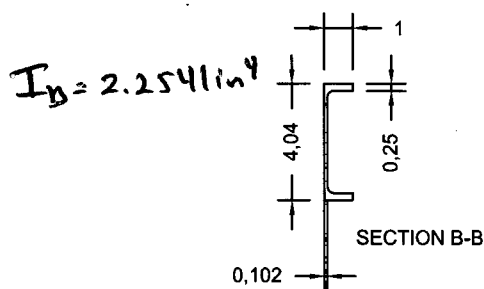
DESIGN	DRAWN BY	DART AEROSPACE LTD VICTORIA INTERNATIONAL AIRPORT, CANADA	REV. A
CHECKED <i>BW</i>	APPROVED <i>KE</i>	DRAWING NO. D2523	SHEET 1 OF 1
DATE 95.12.20	TITLE MOUNTING BRACKET	SCALE 1:4	
A	95.12.20	NEW ISSUE	
A1	01.03.27	ADDED DIMENSION	
A2	02.05.16	R0.125 WAS R0.250	



@ 1 lbf·in for
SECTION B-B (DEFORMATION)

$$\sigma_B = \frac{(1 \text{ lbf} \cdot \text{in}) (2.02 \text{ in})}{2.2541 \text{ in}^4}$$

$$\sigma_B = 0.896 \text{ lbf/in}^2$$



@ 1 lbf·in for
SECTION B-B (UNDAMAGED)

$$\sigma_{BU} = \frac{(1 \text{ lbf} \cdot \text{in}) (2.02 \text{ in})}{2.3391 \text{ in}^4}$$

$$\sigma_{BU} = 0.863 \text{ lbf/in}^2$$

∴ loss of 3.6% in bending
strength, negligible